

Abstract Submitted  
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**Detecting hidden differences via permutation symmetries** PETER TURNER, Institute for Quantum Information Science, University of Calgary, ROB ADAMSON, Department of Physics, University of Toronto, MORGAN MITCHELL, Institut de Ciències Fòniques, Barcelona, AEPHRAIM STEINBERG, Department of Physics, University of Toronto — We present a method for describing and characterizing the state of  $N$  experimentally indistinguishable particles, that is to say particles that cannot be individually addressed due to experimental limitations. The technique relies upon a correct treatment of the exchange symmetry of the state among experimentally accessible and experimentally inaccessible degrees of freedom. Our technique is of direct relevance to ongoing experiments in quantum optics, for which we provide a specific implementation.

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